

CLAIMS

What is claimed is:

- 1 1. A polish composition comprising abrasive particles and about 0.05 to about 5
2 % by weight of an anionic polyelectrolyte or a cationic polyelectrolyte.
- 1 2. The polish composition of claim 1 wherein the polyelectrolyte is an anionic
2 polyelectrolyte.
- 1 3. The polish composition of claim 1 wherein the polyelectrolyte is a cationic
2 electrolyte.
- 1 4. The polish composition of claim 1 wherein the polyelectrolyte has a molecular
2 weight of less than about 100,000.
- 1 5. The polish composition of claim 1 wherein the polyelectrolyte has a molecular
2 weight of about 300 to about 20,000.

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1 6. The polish composition of claim 1 wherein the polyelectrolyte is selected from
2 the group consisting of poly (acrylic acid), poly (methacrylic acid), poly (methyl
3 methacrylic acid), poly (maleic acid), and poly (vinylsulfonic acid).

1 7. The polish composition of claim 1 wherein the polyelectrolyte is selected from
2 the group consisting of poly (vinylamine), poly (ethylenimine) and poly (4-
3 vinylpyridine).

1 8. The polish composition of claim 1 wherein the polyelectrolyte is poly (acrylic
2 acid).

1 9. The polish composition of claim 1 wherein the polyelectrolyte is
2 polyethylenimine.

1 10. The polish composition of claim 1 wherein the abrasive particles comprise a
2 member selected from the group consisting of ceria, alumina, silica and zirconia.

1 11. The polish composition of claim 1 wherein the amount of the abrasive
2 particles is about 0.1 to about 20 percent by weight.

1 12. The polish composition of claim 1 being an aqueous slurry.

1 13. A method for polishing a silicon dioxide surface in contact with a silicon
2 nitride which comprises providing on the silicon dioxide surface a slurry comprising
3 abrasive particles and an anionic polyelectrolyte in an amount sufficient to increase the
4 polishing rate ratio of the silicon dioxide to the silicon nitride.

1 14. The method of claim 13 wherein the polyelectrolyte has a molecular weight
2 of less than about 100,000.

1 15. The method of claim 13 wherein the polyelectrolyte is selected from the
2 groups consisting of poly (acrylic acid), poly (methacrylic acid), poly (methyl
3 methacrylic acid), poly (maleic acid), and poly (vinylsulfonic acid).

1 16. The method of claim 13 wherein the polyelectrolyte is poly (acrylic acid).

1 17. The method of claim 13 wherein the amount of the abrasive particles is about
2 0.1 to about 20 percent by weight.

1 18. A method for polishing a metal surface which is in contact with at least one
2 member selected from the group consisting of silicon dioxide, silicon nitride and silicon
3 oxynitride which method comprises providing on the metal surface a slurry comprising
4 abrasive particles and a cationic polyelectrolyte in an amount sufficient to increase the
5 polishing rate ratio of the metal to said member.

1 19. The method of claim 18 wherein the polyelectrolyte is selected from the
2 group consisting of poly (vinylamine), poly (ethylenimine), and poly (4- vinylpyridine).

1 20. The method of claim 18 wherein the polyelectrolyte is polyethylenimine.

1 21. The method of claim 18 wherein the metal is W, Cu or Al.